The Hidden Benefits of Producing in the U.S.

SelectUSA Summer Forum:
Reinvesting in America, Creating Jobs at Home
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Dr. Susan Helper
Chief Economist

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

Agenda

- Many benefits of US location are hidden by conventional analysis

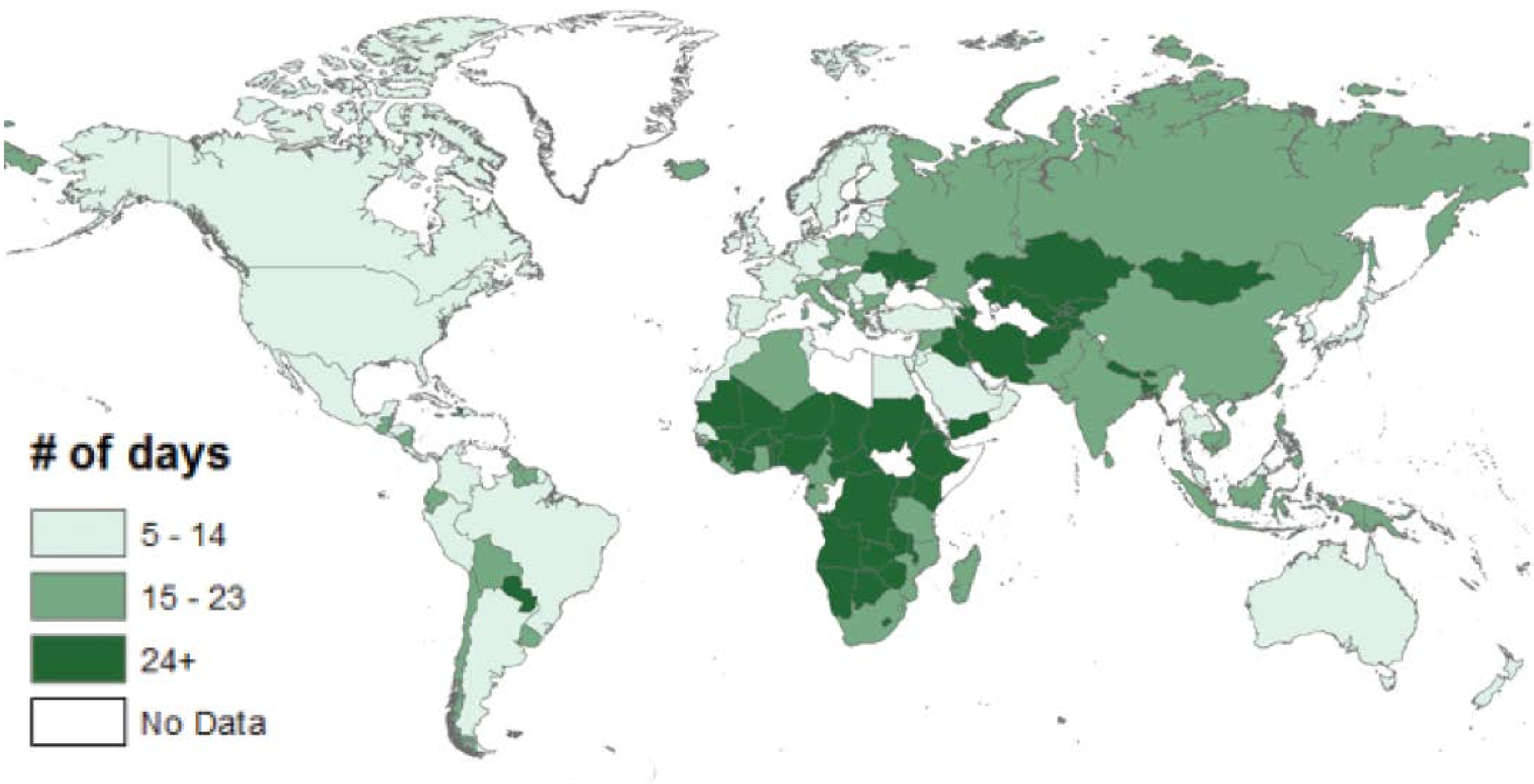
- Much great work being done to improve. Examples:
  - "Assess Costs Everywhere" (acetool.commerce.gov)
  - Valuing Lead Time Reduction (de Treville)
  - Reshoring Initiative (reshorenow.org)
  - Manufacturing Extension Program Total Cost of Ownership

acetool.commerce.gov

Shipping Takes Time

Documentation, customs clearance, handling, and inland shipping can **add 17 to 33 days** to the total shipping time from most emerging market regions and **another 6 days** once goods reach the United States.

Time Required to Comply With All Procedures to Export Goods by Country



Inventory

- Because customer demand often fluctuates unexpectedly, companies should carefully consider the value of a **domestic supply chain with shorter lead times**.

- Using offshore suppliers increases the time between order and delivery, often to many weeks. As a result, the buyer must place the order based on a forecast, rather than having the manufacturer produce to order.

- As the lead time gets longer, the range of demand levels that must be considered becomes wider. These fluctuations lead to costly stock outs or overstocks.

- The cost savings from offshoring may need to be large (> 20%) to make up for these costs of “mismatch” between supply and demand.

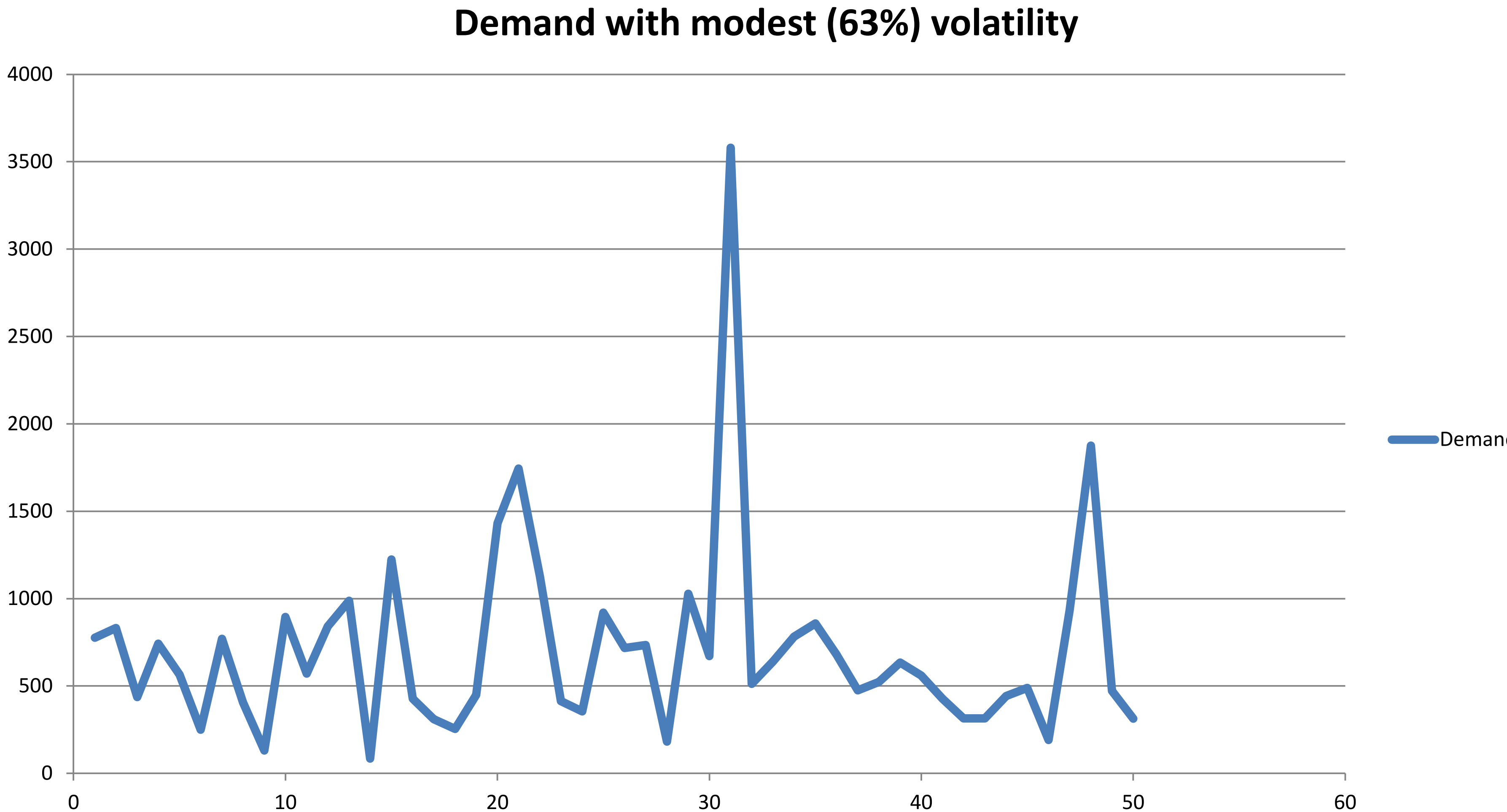
Example: Saris bike racks

- Saris makes bicycle racks in Wisconsin. They re-shored much of their supply base, which reduced their lead time, which reduced the need to carry inventory to handle unexpected spikes in demand, which reduced their costs.

- Many of the company's products are sold to large retailers like Target. The order comes Tuesday and must be filled by Friday. Demand for products can vary by up to a factor of 20. If they have extra stock, its salvage value is much lower than what Target pays.

- Conversely, when Saris had an overseas parts suppliers and demand for low-end models surged, the parts inventory could not be quickly increased, and Saris was not able to take advantage of the demand.

  - *Source:* de Treville and Krishnamurthy, 2014

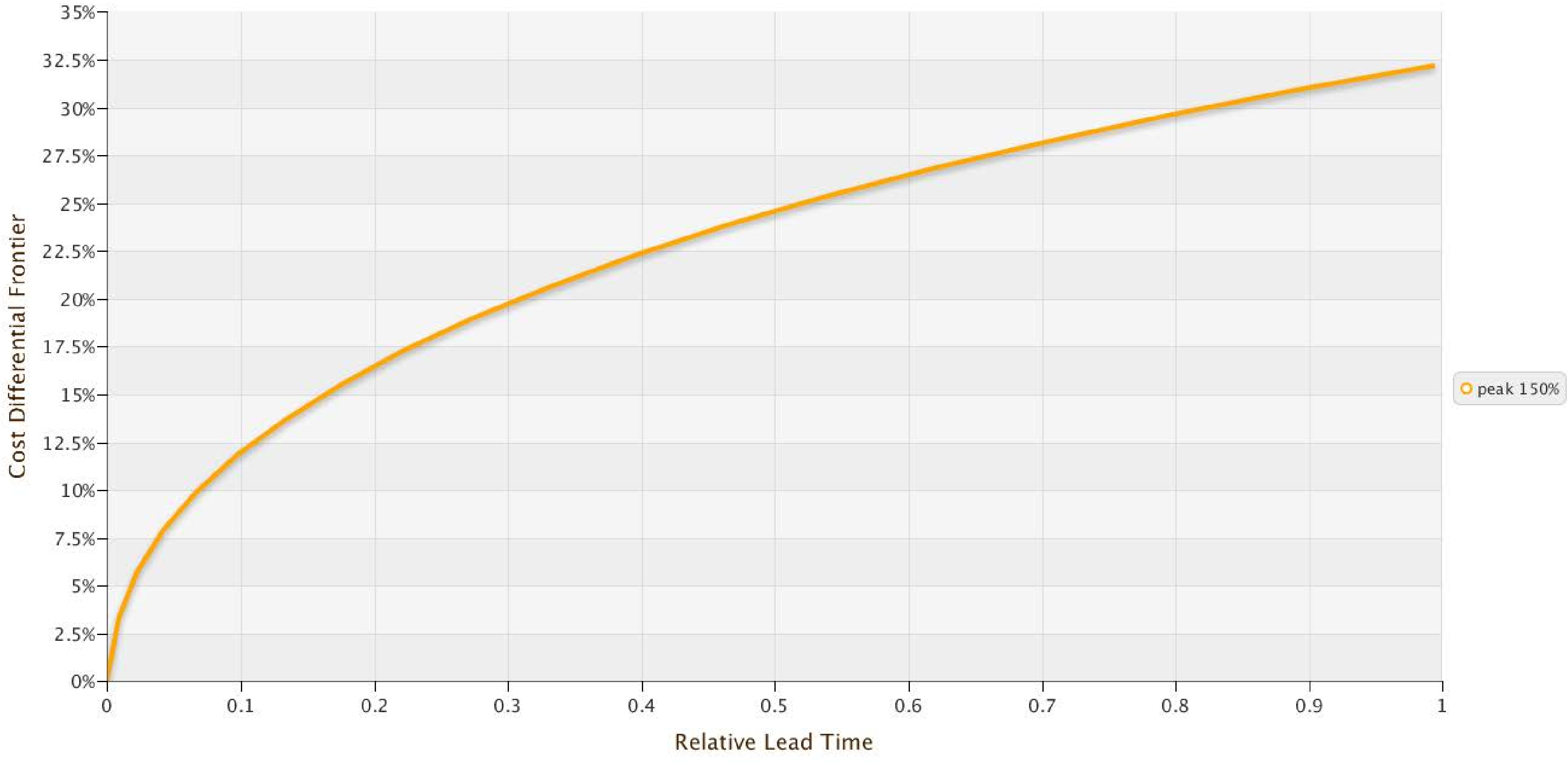


Median demand is 500 units per week; once per month demand spikes to about 750

If lead time = 1, price = \$230, and salvage = \$45, the optimal strategy is to produce 1000 units per week – twice as much as needed, and still there are stockouts

De Treville, University of Lausanne

Cost differential frontier



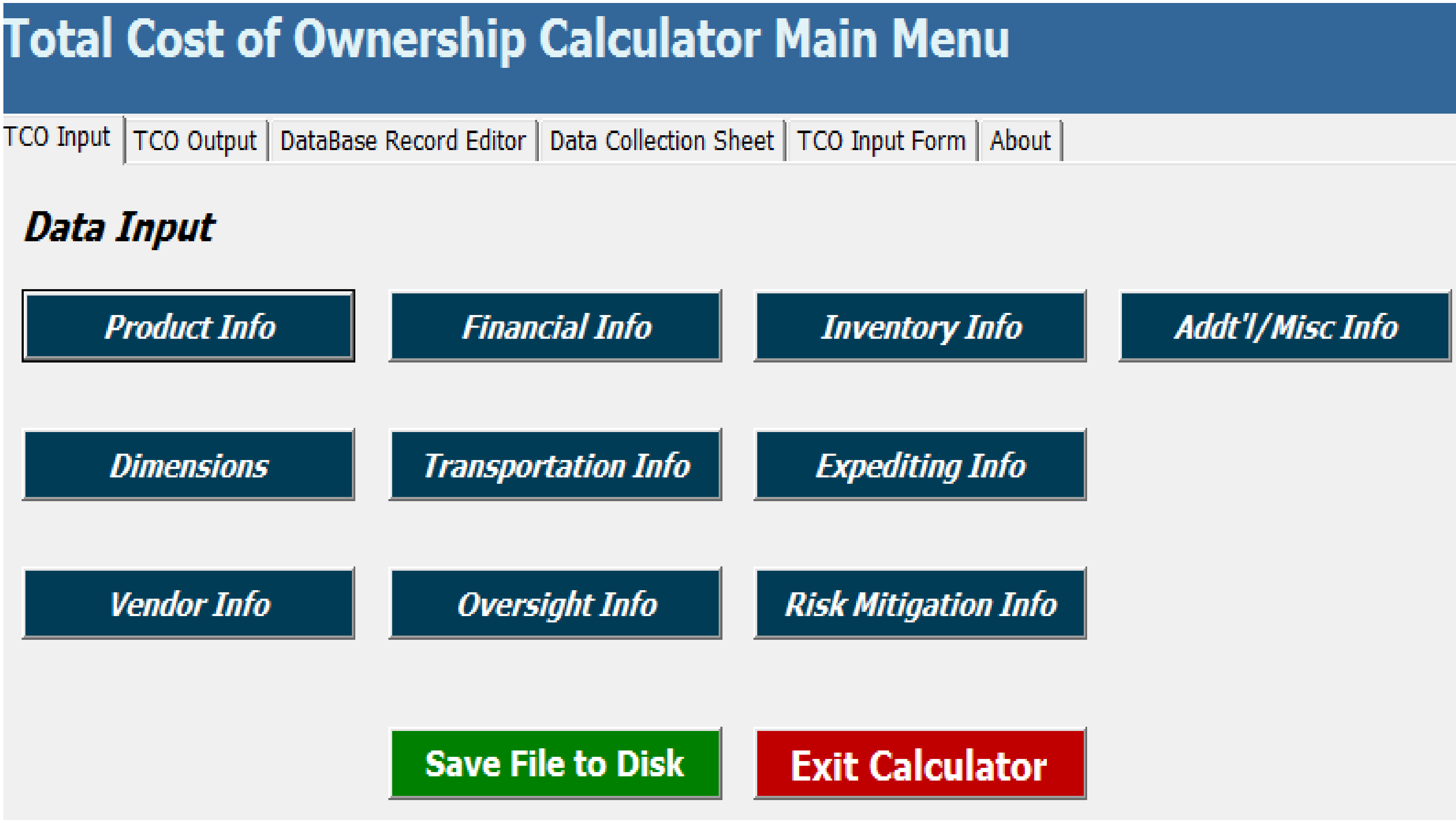
If relative lead time = 1 (as opposed to producing to order), an offshore supplier must be 32.5% cheaper

Total Cost of Ownership Estimator

Reshoring Initiative®

Bringing Manufacturing Back Home

MEP Total Cost of Ownership Calculator



What factors make re-shoring attractive?

- Unexpected spikes in demand + ‘spoilage’
- Product mix includes low-volatility products
- Skilled workers and engineers take advantage of their proximity to redesign product/process
- Firm uses “agile manufacturing”
  - Skilled workers both set up and run machines, debug new products; IT schedules plant; marketing drives demand for variation, short lead time

- *These factors not confined to particular industries*